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DEPARTMENT OF SOCIAL WORK

Infant Mortality in the American Cities

Compiled by **GEORGE B. MANGOLD, Ph.D.**

A SYMPOSIUM

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Rochester.—**George W. GOLER, M.D.**, Health Officer, Rochester, N. Y.

The New York Society for the Prevention of Cruelty to Children.—**E. FELLOWS JENKINS**, Secretary and Superintendent.

INFANT MORTALITY IN THE AMERICAN CITIES.

Compiled by **GEORGE B. MANGOLD, Ph.D.**, Expert, U. S. Department of Commerce and Labor.

The problem of infant mortality is rapidly becoming one of increasing interest and importance. Both here and abroad new methods of dealing with the subject have been introduced, and in some cases marked success has been achieved. In order to throw additional light upon the situation letters of inquiry have been sent to leading American cities for information

in regard to the conditions prevailing in each, and to the changes and reforms under contemplation. Among questions to which answers were especially desired were the following:

1. Is infant mortality increasing?
2. What children's diseases are being successfully overcome?
3. What progress has been made in the control of the milk supply?
4. Are steps being taken to educate mothers in the care of children?
5. Has the precise influence of certain factors, such as poor milk, unsanitary surroundings, neglect, mal-nutrition, etc., been worked out?
6. Are private agencies supplementing the work of the municipality, and, if so, in what way?

Reports from various cities follow. These include extracts from the letters received from the various health officials whose names are given and also their general summaries.

NEW YORK CITY

The mortality of children under one year of age in the old City of New York has steadily decreased during the last fifteen years. In 1891 the rate stood at 241.9 per 1,000, but fell to 191.7 in 1900. It has gradually declined since then and by 1906 had fallen to 167.8. The death rate for children under five has likewise decreased from 96 in 1891 to 54 in 1903. These changes are explained on the ground of "persistent sanitary supervision and preventive medical interference."

Several diseases have become increasingly subject to control. Measles, although still quite irregular in its rate of mortality has declined very largely since 1896 when quarantine was established. Scarlet fever, which was first quarantined in 1888, now causes less than one-fourth the percentage of deaths that formerly resulted. The new treatment of diphtheria and croup has had far-reaching effects. The case fatality has declined from about 40 per cent in 1892 to 10½ in 1903, while the actual rate of mortality is only one-third of that prevailing in 1894. Bacteriologic diagnosis was established in 1892, and since then cases have been more frequently reported. The use of anti-toxin since 1895 has been the most powerful cause of the declining death rates. Diarrheal diseases, confined largely to small children, have decreased 62 per cent since 1881. This is "attributable to a number of causes all operating in the direction of pure food and air, the most prominent among which are a supply of purer milk by reason of official watchfulness, the pasteurization of milk through the instrumentality of private philanthropic enterprises; the education of the mother and nurse as to the necessity of constant vigilance over the cleanliness of infants' food, especially the milk; the opening of small parks; clean streets; and the establishment of the floating hospital of St. John's Guild."

The inspection of milk is being made more rigid. Inspectors operate both within the city and among the dairies which contribute to the city's milk supply. Circulars of information are sent to mothers. The Strauss

milk depots dispense good milk, and in many ways charitable societies of the city are taking a part in the solution of the problem.

PHILADELPHIA

By A. C. ABBOTT, M.D., Chief of Bureau of Health.

The statistics of Philadelphia show considerable variations in the infantile death rate from year to year. The rates for the years 1903-05 were lower than those of preceding years, but how much of this advantage was due to the comparatively cool summers of these two years and to the activity exercised over the question of infant feeding it would be difficult to compute. Of the diseases of infants those that exhibit the most frequent and conspicuous decrease are the diseases of the intestinal canal.

Very decided progress is being made in the quality of the milk supplied, but that progress will never be very marked or satisfactory until the department of health is authorized by the state legislature to issue licenses to all individuals who are engaged in the milk trade, giving them, at the same time, power to revoke the license if the dealer does not conduct the business in conformity with sanitary precepts. An effort was made at the last session of the state legislature, as also at that of 1905, asking for such power, but it was denied us in both cases. I do not believe any permanent progress can be made until we have it in our hands to eliminate all incompetents from a business requiring technical training, and a business handling the most perishable commodity that comes to the community.

There is a continuous effort through the public press and charitable organizations, through district doctors, visiting nurses, etc., to educate mothers in the care of infants. The difficulty in this particular kind of work lies in the fact that all mothers who need the education are so densely ignorant that it is difficult to make an impression on them, and as many of them do not understand the English language, the difficulty is not lessened. This bureau distributes every summer, tracts in several languages, instructing mothers what to do, but whether they have any effect or not, I am, unfortunately, unable to say.

The municipality receives co-operation from practically all the charitable organizations and institutions, both in the way of instructions and in the way of material help to the poor. There is still, however, an opportunity for good that has not yet been fully realized. My belief is that a great deal of the money that is expended in what is called charity, is not expended wisely. My plan would be to have house-cleaning squads employed, who, under proper supervision, would go into tenements and into the slums, and not only instruct the people how to clean their houses, and the advantage of it, but who could actually pitch in and clean the houses themselves if the householders were not inclined to do it. I know of few charities that would be so far-reaching in their good effects as the one that I have just mentioned.

ST. LOUIS

By THOMAS A. BUCKLAND, City Chemist.

As a result of the enforcement of the ordinances regulating and controlling the production and sale of milk there has been a marked improvement noticed in the quality of the milk sold in the City of St. Louis. Chemical testing of milk will protect against watering, skimming, and the addition of preservative and other adulterants. It cannot, however, do very much in protection from unsanitary production and handling of milk. Dairymen and farmers of the present day are as a rule careless and indifferent, largely as a result of ignorance. There are dairies in which all the most modern sanitary precautions are observed, and St. Louis is fortunate to receive a small portion of her milk supply from such source. The quantity thus received is, however, small. The sanitary division of the health department uses its best efforts to compel sanitary conditions in the dairies located within the city limits. There is, however, a limit to the powers granted by the law to its officers in enforcing cleanliness. The most hopeful sign in the situation in this city is the existence of the above-mentioned small and gradually increasing number of sanitary dairies located in the country adjacent to St. Louis and contributing to the milk supply.

The St. Louis Pure Milk Commission has done much good work supplementing that of the city. It was organized in 1903 and follows the plan of the Strauss milk depots of New York City. Fifteen milk stations have been established, and a large quantity of modified and pasteurized milk is annually sold or distributed. In addition to the distribution of such milk for infant feeding, the commission has accomplished something towards the improvement of the general milk supply of the city; and at present there are three dairies that have all the rigid requirements of the commission and are now supplying their trade with "certified milk."

The infant mortality of the summer months between 1896 and 1904 was comparatively high, since then a decrease has occurred, part of which is undoubtedly due to the agencies working for purer milk.

BALTIMORE

By C. HAMPSON JONES, M.D., Assistant Commissioner of Health.

So far but fair progress has been made in controlling the milk supply. We hope in a short time that the city will make sufficient appropriations for us to supervise it at the seat of production in the country and at the points of distribution within the city. Private agencies have established milk distributing depots where milk is obtained by poor people at less than cost, the milk being properly cared for so that the bacteria count is low, and being given to the babes as soon after milking as possible. These agencies have been doing good work, and in conjunction with the work of this department will materially affect the death rate of children.

It is difficult to determine whether infant mortality has been decreas-

ing or not. Unless the exact number of children under one is known, the percentage cannot be calculated. Again, rates vary much from summer to summer, due to atmospheric conditions that affect the development of bacteria in milk. They have been low the past summer owing to a comparatively low temperature.

BUFFALO, N. Y.

By ERNEST WENDE, M.D., Health Commissioner.

Infant mortality is decreasing, owing to the following factors: (1) Dissemination of rules concerning infant care and hygiene, by the department of health and sent to each householder with infants. These circulars are printed in several languages and contain condensed information and instructions and are mailed to each mother when birth of child is recorded. When contagious diseases are reported, and inspector calls and leaves a circular pertaining to the subject. (2) Reduction of indirect and direct etiological features bearing on contagious diseases. (3) General increased enlightenment in sanitation.

The principal diseases upon which preventive measures have had most bearing are cholera infantum and the various enteric maladies and the infectious diseases of early life, principally scarlet fever and diphtheria.

The milk industry is supervised from source of supply to consumer. The following are the salient points of guard, viz:

1. Inspection of dairies, particularly in regard to conditions of herds, the presence of tuberculosis or bad udders among them.

2. Their food and water supply.

3. Condition of barn, method of cleanliness, general sanitation.

4. Care and cleanliness in milking, and method.

5. Care and cleanliness of utensils, cans, bottles, etc.

6. Time and method of cooling, hours of shipment and care in transportation.

7. Possibility of contagion from presence of contagious diseases of every kind at the farm, among the employees, and every possible source.

8. Supplying the farmer with charts—sanitary rules printed in large type on cloth, to be hung in a conspicuous place in dairy, also supplying him with circulars from time to time with sanitation rules and requirements.

9. The surveillance of city dairies. Demanding a strict adherence to a sanitary standard covering all points which, if lived up to, will minimize all deleterious possibilities.

10. Surveillance of the relationship between milk dealers and contagious diseases occurring on their routes. This is done by keeping a "tell-tale register" of the same. Each contagious disease as it is reported is charged up against the milk routes on which it occurs. This is scanned every day and when it appears that more than a certain number of cases appear upon the route of any one milkman, his entire establishment, product and source of supply, is instantly investigated, and when indicated, the estab-

ishment or its source of supply or both are closed. In this way incipient epidemics of scarlet fever, typhoid fever and diphtheria have been promptly detected and checked. But a few days ago (July 2, 1907), a case of smallpox was discovered on a route, and action immediately taken before consequences ensued. This "tell-tale register" is considered most valuable.

Private agencies are not supplementing the work of this department in the sphere to which attention is invited.

CINCINNATI

By SAMUEL E. ALLEN, M.D., Health Officer.

The proportion of deaths of children under two years of age to the total mortality has decreased considerably since 1886. In that year the percentage was 32.56, while in 1906 it stood at 21.92. Strenuous efforts have been made to place the milk supply upon a proper basis. The regulations that have been made are being vigorously enforced. They cover such points as the following: Permits to milk dealers; sufficient pasturage for cows; the regulation of the feeding of distillery waste, which is allowed under certain conditions and to a certain amount; the prohibition of sales of milk above a certain temperature; rules in respect to adulterated, skimmed, impure, and condensed milk; and in 1907 a regulation was adopted requiring dairymen who sell milk in the city to furnish certificates showing that their milk cows are free from tuberculosis or other dangerous diseases.

Aside from a circular issued to mothers in regard to the care of infants in hot weather, the department of health has made no efforts along educational lines, and probably private agencies have taken no steps toward the solution of this question.

MILWAUKEE

By G. A. BADING, M.D., Commissioner of Health.

After stating that the infant mortality of Milwaukee had shown a remarkable decrease Dr. Bading continues as follows: The diseases that are being especially wiped out are the acute infectious and contagious diseases, such as smallpox, diphtheria, and scarlet fever, which have practically been wiped out altogether among infants; and diarrheal diseases, which are diminishing rapidly from year to year.

As regards the control of the milk supply in the City of Milwaukee, we have, during the last year and a half, made progress in this respect. Our milk ordinance is a very stringent one, requiring tests for the percentage of solids, such as butter fats, as well as a bacteriological test, which fixes the standard at 250,000 bacteria per cubic centimeter. The carrying out of the provisions of this ordinance has resulted in furnishing to the city of Milwaukee a very good milk supply. Besides the ordinance which is in existence at the present time, we have now pending before the common

council an amendment with provisions requiring, among other things, a tuberculin test of every dairy animal from which milk is shipped to the city, fixing a bacteriological standard of cream, and demanding that milk sold in the City of Milwaukee shall be at a temperature of not more than 50° Fahrenheit.

The health department is distributing pamphlets, giving various rules and regulations as to the care of infants, particularly during hot weather. This question has been agitated in the daily papers to such an extent that we are receiving numerous applications for these printed copies.

As regards the precise influence of certain factors, such as poor milk, unsanitary conditions, malnutrition, etc., on the mortality rates among infants we are unable to furnish any definite information. No doubt the stringent supervision of the milk supply has had a marked influence. The other conditions have not as yet been worked out. About six months ago we succeeded in passing through the common council a tenement house ordinance which gives us control over the tenement conditions, and we no doubt will find that improvement in that respect will also have its influence. At the present time, private agencies are endeavoring to establish one or more fresh-air pavilions at the lake front for the care of infants during the hot summer months. These pavilions have, however, not as yet been erected, but the movement has progressed to such an extent that there is no longer any doubt that we will have them.

MINNEAPOLIS

By P. M. HALL, M.D., Commissioner of Health.

Infant mortality is decreasing, and the diseases which are slowly being suppressed are the various bowel troubles, such as cholera infantum, etc.

A bacteriological and chemical examination of milk is made in order to secure a good quality, and all cows are given the tuberculin test. When a birth is registered, the department of health sends to the mother a copy of a circular containing information in regard to the proper care and food of the child. The underlying causes of infant mortality have not, however, been worked out so as to make possible a determination of the precise influence of the chief contributing factors.

With the exception of what is done by associated charities and the outing association, private agencies are not supplementing the work of the municipality.

PROVIDENCE, R. I.

By CHAS. V. CHAPIN, M.D., Superintendent of Health.

There has probably been a slight increase in the infant mortality. According to the records the rate for infants under one year of age has increased from 122 per 1,000 births in the period 1856-60 to 158 in the period (490)

1901-05. A part of this increase, however, is not real but only apparent, but children of both American and foreign parentage participate in the increase. There has probably been a slight decrease in tuberculosis and the ordinary infectious diseases. An increase has been noted from influenza and diarrheal diseases. The latter may be due in part to increased artificial feeding. The milk supply, however, is being improved as rapidly as it is found possible.

The education given the mother consists of a circular of instructions which is sent to the parents of each child that is born. Last year and this a committee of physicians has been furnishing milk to infants on the plan developed by Dr. Goler, of Rochester. This summer the District Nursing Association is devoting one nurse to the care of infants. So far, however, not much has been done in the way of studying the various factors determining infant mortality.

ROCHESTER, N. Y.

By GEORGE W. GOLER, M.D., Health Officer.

Infant mortality is decreasing in Rochester, and the records show that the number of children under one year of age dying during the decade ending 1896 was 4,975. For the following decade 3,421 deaths are recorded. Deaths of children under five have likewise declined from 2,476 to 1,544 for the corresponding periods. The figures show what Rochester has been able to accomplish in reducing its mortality among infants. The greatest gain is that for the months of July and August during which milk stations have been in operation since 1897. After the first year four stations were required for the needs of the city. Each one is in charge of a trained nurse who advises with mothers and dispenses milk to buyers. For two years the milk was pasteurized, then in 1899 the central station was established on a farm, and instead of pasteurizing milk all of the utensils, bottles, etc., were sterilized and clean milk put out. The work is carried on at an average expenditure of \$1,000 a year for a season of two months.

The success attained in Rochester is not altogether due to the work of the milk stations, but is in part attributable to systematic work covering the inspection of all the producers' stables from which milk is drawn, to monthly bacteriologic examinations of all milk used, to an attempt to secure a low temperature of milk in the summer, and to the labors of the chemist and the chief milk inspector.

Smallpox, diphtheria, scarlet fever, and especially diseases of the respiratory tract, are declining and becoming less virulent, but just how much their lessening virulence is due to the heredity received from a long line of ancestors, and how much to the improved conditions of living, I do not know. While more children live and fewer die, many of those who live are growing smaller in stature, less robust and less able to successfully cope with the work of the world. In the children who survive we see the old latent effects of diseases. The ear marks of tuberculosis, due to

infection by milk, the red eye lids, enlarged glands, and various other marks of latent tubercular infection are noticeable.

Outside of the little pamphlet of instructions to mothers in respect to the care of babies, few steps are being taken to educate them upon this subject. In the Mechanics Institute a course of lectures is to be resumed this year on the hygiene of childhood similar to those begun by the writer a dozen years ago.

The municipality gets very little help from the work of private agencies. Not that private agencies are not doing a great deal, for they are, but the great difficulty with all work of this kind is the lack of co-operation. One set of people are interested in doing things for hygiene and nothing else; another set in looking after the sick; another, in furnishing milk and so on. I do not believe we can do much until we can have a kind of clearing house in which all kinds of relief work may be operated together.

NOTE.—Letters were received from several additional cities either stating that little or no work was being done along the lines indicated, or the replies were such that we have not been able to utilize them. A number of cities did not reply to our queries, and concerning them such information as we have given in respect to the foregoing cities cannot be recorded.

THE NEW YORK SOCIETY FOR THE PREVENTION OF CRUELTY TO CHILDREN¹

The New York Society for the Prevention of Cruelty to Children occupies a unique position in the metropolis. It is at once a state agency and a private institution, a seeming contradiction of terms, but not so understood by those who know the causes underlying the granting of extraordinary legal powers to a private institution whose records are not public property. The action of the legislature in delegating such authority to the societies organized in New York under the Membership Corporations Laws is thoroughly approved by judges and jurists and was, indeed, held by the Court of Appeals of New York State to have been a wise public policy. The Society does a work of prevention, the extent of which is not only little known, but can probably never be fully understood by the general public. It is necessarily a quiet work, being of a more or less personal nature and requiring ceaseless attention night and day. The community at large will never know the number of rescues of children from neglect and abuse and unspeakable cruelties which are being continually made by the Society's agents in New York City alone. Annual reports and public statements can refer in but a very vague and general way to the breadth of the work and to the detail which can never be written. Almost three-quarters of a million of children have been involved in the investigations made by the Society's officers, and the welfare of each of them contributed to directly or indirectly in such a manner as to have improved their condition in some way. This

¹Contributed by E. Fellows Jenkins, Secretary and Superintendent
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